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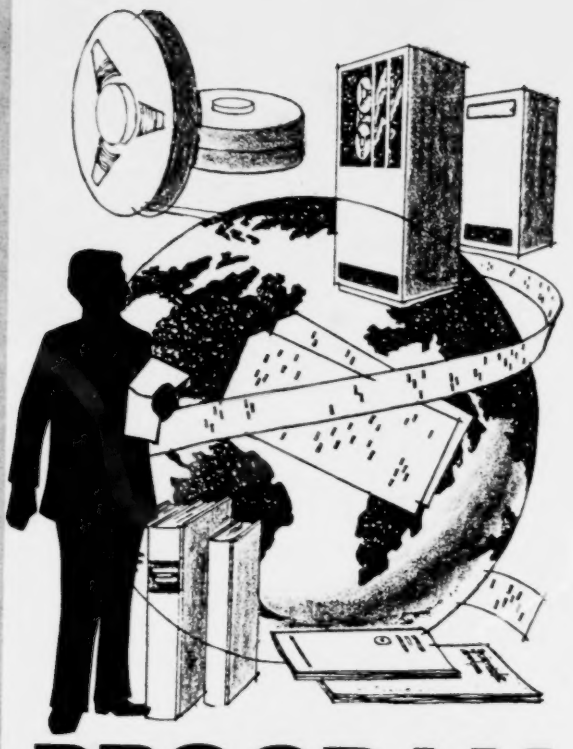

PROGRAM ANNOUNCEMENT

Information Science Research

m/c

NATIONAL SCIENCE FOUNDATION
Directorate for Scientific, Technological, and International Affairs
Division of Science Information
Washington, D. C. 20550

The present announcement supersedes three previous program announcements and two brochures from the Office of Science Information Service and the Division of Science Information of the National Science Foundation. The announcements no longer valid are: *Guidelines for the Preparation of Unsolicited Proposals for: (1) The Economics of Information Program (NSF 74-43); (2) The User Support Program (NSF 74-44); and (3) The Access Improvement Program (NSF 75-26).* The two superseded brochures are: "Improving Dissemination and Use of Scientific and Technical Information," (NSF 73-29); and "To Improve Access and Use of Scientific and Technical Information," (NSF 75-50). Another program announcement, *Operational Trials of Electronic Information Exchange for Small Research Communities,* (NSF 76-45), remains valid.

Also, development of new information technology will not be supported under this announcement, nor will tests of marketing strategies or other potential revenue-generating activities that will primarily benefit specific organizations. User education proposals are no longer appropriate under the information science research program. For guidance on where such proposals may be appropriate please consult the *Guide to Science Education Programs* (SE 78-1) available from the Publications Office, National Science Foundation, Room 223, 1800 G Street, NW, Washington, DC 20550.

PROGRAM ANNOUNCEMENT

INFORMATION SCIENCE RESEARCH

INTRODUCTION

The National Science Foundation seeks to expand and strengthen its information science research program.[1] This program includes support for:

- Fundamental information science research—with emphasis on strengthening the conceptual and theoretical foundations of this emerging discipline;
- Applied information science research—with emphasis on increasing knowledge about human, social, economic, and technological factors affecting the transfer and use of scientific and technical information; and
- Descriptive and analytical studies—with emphasis on describing and analyzing major changes in the operation of the scientific and technical communication system in the United States.

Proposals may be received at any time. Review generally requires 6 to 7 months. This means that proposals should be received by January 31, 1978 to ensure possible initiation prior to the end of the fiscal year (September 1978). For proposals received by June 1978, decisions should be reached in time to allow projects to begin by the end of 1978. Similar schedules are expected to be followed in subsequent years.

[1] Two publications describing past research supported under the Science Information Activities program of the National Science Foundation are available. "Summary of Annual Awards: FY 1976 and Transition Quarter" provides abstracts for all awards made during Fiscal Year 1976 and the Transition Quarter and lists still active awards from previous years. "Reports and Publications of Science Information Projects: Bibliography 1973-1977" provides abstracts for reports from research supported under the Science Information Activities program in recent years. Both are available from the Publications Office, National Science Foundation, Room 223, 1800 G Street, NW, Washington, DC 20550.

One caution, research on marketing problems and user education is no longer being supported under the Science Information Activities program. Otherwise, these two publications should help inform persons about information science research already supported by the National Science Foundation.

ILLUSTRATIVE INFORMATION SCIENCE RESEARCH TOPICS

FUNDAMENTAL INFORMATION SCIENCE RESEARCH

This area of research is aimed at strengthening the foundations of information science as a discipline. Research may include studies designed to: clarify concepts, develop and test hypotheses about the characteristics of information transfer processes, develop and test research methods or to synthesize and generalize information science knowledge in the form of explanatory principles and models.

Fundamental information science research may draw upon and integrate knowledge and methods from related disciplines such as the behavioral and social sciences, computer science, linguistics, management and decision sciences.

Examples of potential research topics are:

- Conceptual and theoretical analyses of the characteristics of information and information transfer processes.
- Studies of cognitive processes underlying human information acquisition.
- Investigations of the fundamental properties of language and human information processing.
- Measurement of the value of information.
- Development of conceptual bases for question-answering retrieval systems (also called knowledge, fact or associative retrieval systems).

These are examples only and are not intended to limit the areas of investigation.

APPLIED INFORMATION SCIENCE RESEARCH

This area includes conceptual and empirical research on factors affecting the communication and the use of information. Applied research extends across the entire information transfer cycle, from creation of new information, through all means of transmitting, storing, and retrieving information, to its ultimate use.

Illustrative applied information science research topics include:

- Analyses of alternative information systems and technology applications, including problems associated with capturing, distributing, storing, retrieving, and using information.
- Investigation of behavioral and social factors that influence the flow and use of information.
- Investigation of the economics of information transfer markets.
- Study of ways in which computer and telecommunication services can be used to augment users' intellectual capabilities in analyzing and applying information.

These examples are only intended to illustrate types of proposals that may be submitted.

DESCRIPTIVE AND ANALYTICAL RESEARCH

This area includes research designed to provide data about the structure and functioning of the U.S. scientific and technical communication system, taken as a whole, or about its most important major components.

Examples of research topics are:

- Description of the size, composition, and levels of expenditure of the S&T communication system and its major components.
- Investigation of changes in the economic structure and functioning of the S&T communication systems and their impacts on the overall effectiveness of the system and upon different classes of users.
- Analyses of the major social, economic, and technological trends affecting the structure and functioning of the U.S. S&T communication enterprise.
- Study of interactions between the U.S. and world S&T communication systems.

These topics are presented as examples only of types of descriptive and analytical research that may be proposed.

PREPARATION AND SUBMISSION OF PROPOSALS

GENERAL

A proposal should describe explicitly the activities to be undertaken, how and when they will be accomplished, and any other pertinent information which will assist in evaluating the proposed project. Proposals should be concise and structured according to the format outlined in this announcement. They should not include materials having little relevance to the objectives of the project. Exclusive of appendices, proposals generally should not exceed 25 double-spaced pages.

WHO MAY SUBMIT

Proposals may be submitted by academic institutions, nonprofit and profit-making organizations, units of government (Federal, State, or local); or by a combination of these. As noted under *Budget*, cost-sharing is required for all unsolicited research proposals.

FORMAL PROPOSALS

The formal proposal consists of a Cover Sheet, Table of Contents, Abstract, Narrative, and

Budget, presented in that order. Although the narrative is usually prepared first, the essential elements will be discussed in the order in which they appear in the completed proposal.

Cover Sheet. The cover sheet should be prepared in accordance with Appendix A. The "submitting organization" line should show the commonly used name of the organization sponsoring the project and providing appropriate facilities and logistic support. Normally, it is the principal investigator's parent institution or organization. If the National Science Foundation decides to support the project, an award will be made to the organization which will be legally responsible and financially accountable for the use and disposition of any funds awarded. In the event this is a different legal entity from the "submitting organization," it should be identified on the separate lines provided. The title should be descriptive but not in excess of 180 characters and spaces. One copy must be signed by the principal investigator(s) and by an official authorized to commit the organization or institution to the conduct of the project and to the prudent management of funds if the National Science Foundation agrees to support it.

Table of Contents. Present a table of contents to facilitate review and evaluation.

Abstract. An abstract of the proposal, not to exceed 250 words, is required. It should provide a summary of the proposal including: a clear, concise statement of the problem, objectives of the study, variables being measured, hypothesis, approach or methods being proposed, and any other pertinent information.

This abstract will be the basis for a project description provided to the Smithsonian Science Information Exchange if a grant is made, and will be available to the public. Consequently, it should be informative to scientists in the same or related fields, but at the same time, should be written in language that can be understood by an intelligent layperson.

Narrative. The following guidelines apply mainly to preparation of proposals for applied information science research and for descriptive and analytical studies. *Proposals for fundamental research are not expected to include detailed discussion of requirements associated with applied research, such as evaluation of research or the project management plan.* Most of the following guidelines, however, are considered applicable to proposals for all information science research.

a. *Research Plan.* Proposals should present a complete statement of the problem area under investigation and should include: objectives; description of the research design and methods; expected value of the results for science or in applications; relation to the present state of knowledge and activity in the field, previous work, and related work in progress elsewhere; and a bibliography of pertinent literature. The proposal should demonstrate a working knowledge of completed research and research in progress in relation to the project design. The general plan of work should include details for each major phase or division of the project. Principal investigators are encouraged to attach the printout of searches of one or more relevant data bases or an annotated bibliography as an appendix to the proposal.

b. *Institutional Resources and Related Programs.* Available facilities, personnel (other than those directly included in the proposal), and items of equipment (e.g., computers) as they may bear on the successful implementation of the project, and related programs of the organization which may lend strength to the proposed effort, should be described.

c. *Evaluation.* Proposals involving experiments or operational tests of innovations must include an evaluation design. Evaluation designs should specify the conceptual basis for the evaluation as well as independent and dependent variables to be measured, measuring instruments and methodology, statistical design, and other techniques or procedures to be used.

d. *Dissemination of Results.* Proposals for applied research should discuss the form and content of communications by which results of the proposed project will be disseminated. Support for innovative modes of dissemination may be included in a proposal.

e. *Biographical Information.* A proposal should include biographies of the principal investigator(s) and supporting personnel as well as a list of their relevant research and major publications. Biographies should emphasize training, experience, interests, and publications which are related to the proposed activities. Also, each proposal must list all current research, in addition to that proposed, to which the principal investigator(s) and other senior research personnel have committed a portion of their time,

whether or not salary for the person involved is included in the budgets of the various projects. This information should include the titles and dates of current grants or contracts, the source of funds, annual budget levels, and the person-months devoted to each project by each of the senior personel. The proposal must also provide analogous information for all other proposed research which is being considered by, or which will be submitted in the near future to, other possible sponsors, including other Foundation programs. Concurrent submission of a proposal to other organizations will not prejudice its review by the Foundation.

f. *Project Management.* Proposals should provide a concise plan for coordinating project activities and assigning responsibilities to project personnel. The management plan should include a schedule of the necessary steps for achieving objectives. Estimates of time and costs for each step should be included. Where more than one principal investigator will be involved, the proposal should identify the person who will be responsible for planning, coordinating, supervising, and integrating the work. A variety of collaborative arrangements may be utilized, e.g., university consortia or other combinations involving either nonprofit or profit-making organizations. In each case, arrangements for coordinating the proposed work should be described. A summary work statement should relate the allocation of budgetary and personal resources to each stage of the project.

g. *Appendices.* These may be included as appropriate to present detailed information in support of the proposed activities, as in the case of a print out or annotated bibliography.

Budget. A proposal budget should be submitted in the format presented in Appendix B. The budget should summarize the estimated total project cost which is being requested from NSF after deducting the share which the applicant institution or organization plans to contribute to such costs. The Congressional Appropriation Acts providing funds to the National Science Foundation and other independent agencies require cost sharing by recipients of grants resulting from unsolicited research proposals. Cost sharing does not apply to proposals submitted solely for the purpose of supporting studies, conferences, workshops, international travel, etc. This provision for cost sharing requires that the Foundation pay less than full costs of research projects performed under grants resulting from unsolicited research proposals. Cost sharing must be more than one percent of total project costs. Cost-sharing amounts should be explained in the proposal and in the footnotes to the budgets, particularly where nonacademic organizations are involved. Cost sharing should be shown separately from the line item amounts requested from NSF so that the cost sharing, when added to the amount requested from NSF, will equal the total project costs. Cost sharing amounts may be determined in negotiations between NSF and the performing organization in accordance with the guidelines contained in Federal Management Circular (FMC) 73-3. Substantial cost sharing will be expected in the case of experiments/demonstrations undertaken by operating organizations that can reasonably be expected to result in long-term benefits to those organizations. The liberal use of footnotes to the budget is recommnded for explanation of unusual items. The *NSF Grant Policy Manual* NSF 77-47, Chapter V, may be consulted for general guidance as to allowable costs which may be included in the proposed budget. Following are some of the instructions that are especially applicable:

a. *Salaries and Wages.* This entry should include only direct labor costs. Anticipated consultant fees should be shown under the category "Other Direct Costs." Except for data considered to be "privileged, information," the proposal (including the proposed budget) may be made available to outside advisers and reviewers. The budget must include the names of all senior personnel, an estimate of the amount of effort which they will devote to the project (expressed in person-months), and the dollar estimate of the total direct labor costs to the project of such senior personnel. For other categories of personnel, names may be omitted but numbers and costs must be shown together with person-month estimates for other professional personnel.

The submitting institution may request that senior personnel salary data not be released to persons outside the government. In this case, the item for senior personnel salaries in the formal proposal may be expressed as a single figure and the person-months represented by that amount omitted. If this option is exercised however, senior personnel salaries and person-months must be itemized in a separate statement, two

copies of which should accompany the proposal. This statement must include all of the information requested below for each person involved. The detailed information will not be forwarded to reviewers and will be held privileged to the extent permitted by law.

b. *Permanent Equipment.* In general, funds will not be provided for purchase of permanent (capital) equipment, including computers.

c. *Travel.* The type and extent of travel and its relationship to the project should be specified in the proposal. Allowances for air travel will not normally exceed round trip jet economy air rates. Requests for support of subsistence costs or per diem allowances must be consistent with the policies of the proposing institution. If foreign travel is contemplated, the points of origin and destination for each trip should be specified.

d. *Publication Costs.* Cost of preparing, publishing, and disseminating the results of research conducted under the award, including costs of reports, reprints, manuals, handbooks, page charges, or proceedings and other journal costs, and necessary illustrations should be included.

e. *Computer Costs.* Computer charges should include average rate/hour, number of hours to be used, and type of computer, and the relationship to the project should be briefly explained.

f. *Other Direct Costs.* Any other anticipated direct costs not included above should be itemized, for example, dissemination, space rental, information service charges, consultant compensation. Consultant compensation rates should show separate amounts for (1) actual services and (2) for each additional component of the rate (if any). Payment for consultant services may not exceed a rate of $183 per day.

To the extent that consultants are to be used, the need should be justified and information should be provided on the individuals' areas of expertise, their primary organizational affiliation, daily rate, and number of days each is expected to be used.

If major tasks are to be subcontracted or shared, the associated organizations and the specific tasks should be identified, and arrangements for supervision explained. If a subcontractor has been identified, the proposal should explain the basis for selection of the organization, the extent of competition or consideration given to others, the work to be performed, and the reasonableness of the cost. A proposed performance statement and budget should be included.

g. *Indirect Costs.* Awards will provide reimbursement for indirect costs in accordance with current NSF policy contained in Section GPM 530 "Indirect Costs," of NSF 77-47.

Privileged Information. The proposal is an integral part of the award instrument, and normally will be made available to the public, upon request. Proprietary scientific information, salaries of key personnel, or other information which the grantee desires be treated in confidence should be included in a separate statement bearing a legend similar to the following: "Following is (Proprietary)(specify) information which (name of proposing organization) requests not be released to persons outside the Government, except for evaluation purposes." Without assuming any liability for inadvertent disclosure, NSF will seek to limit dissemination of such information to its employees and, where necessary for evaluation of the proposal, to outside reviewers. In any case, NSF will not be limited in using similar information obtained without restriction from another source. NSF may also have the right to use or disclose the data unless otherwise provided by the award.

A proposal that does not result in an award may be retained by the Foundation. Such a proposal will be released only: (1) with the consent of the proposer; or (2) to the extent required by law. A proposal may be withdrawn at any time prior to final action thereon by the Foundation.

Miscellaneous. All pages should be numbered.

FIRST-TIME APPLICANT

In the event that the submitting organization has not recently been the recipient of an NSF award, it is recommended that appropriate administrative officials be familiar with the NSF policies and procedures contained in the NSF *Grant Policy Manual* (NSF 77-47), which are applicable to most NSF awards. The Government Printing Office provides subscription service for the *Manual* to assure that users will have the latest, up-to-date information. The subscription price is $12 per *Manual* for domestic customers and $15 for foreign. Subscribers will automatically receive subsequent updating supplements without additional charge. Copies of the *Manual* have been distributed to all NSF grantees. Other organizations or individuals

seeking subscriptions may order them directly from the Superintendent of Documents, Government Printing Office, Washington, DC 20402.

If the submitting organization has not already done so, it should be prepared to furnish the following to the NSF Division of Grants and Contracts on request:

- Basic information regarding organization and management, as outlined in Section GPM 340, Prospective Grantee Organization and Management Data, of the *Manual*, with particular reference to the most recent certified financial management statement required of nonacademic organizations.
- An assurance of compliance with the NSF regulation under Title VI of the Civil Rights Act of 1964, as outlined in Section GPM 700, Civil Rights Act of 1964, of the *Manual*.
- Identification of the cognizant Federal negotiating agency which has approved the organization's indirect cost base and rate(s) and the date of the most recent negotiation. If the submitting organization does not have a federally-approved indirect cost base and rate(s) the business officer should be prepared to submit an indirect cost proposal, as outlined in Section GPM 201d of the *Manual*, when requested to do so. Contents and financial data included in indirect cost proposals vary according to the nature of the proposing organization. Appropriate guidelines for your organization may be obtained by writing the Policy and Cost Analysis Branch, Division of Grants and Contracts, Room 206, 1800 G Street, NW, Washington, DC 20550, or calling (202) 634-7545.

SUBMISSION OF PROPOSALS

Proposals may be submitted at any time and should be addressed to:

Central Processing Section
National Science Foundation
Washington, DC 20550

ATTN: Division of Science Information

A signed original proposal and twenty(20) copies should be sent as a single package.

ACTION BY THE FOUNDATION

NOTIFICATION OF RECEIPT OF PROPOSALS

To facilitate prompt acknowledgment of the arrival of the package at the Foundation, the proposer should cut out two acknowledgment-of-receipt postcards from the back cover of this guide, fill them in to identify the proposal, address one card to the project director and the other to the official authorized to sign the Cover Sheet and attach them to the Signature Copy of the Cover Sheet. When the package arrives, the date of receipt and an assigned proposal number will be stamped on the card before it is returned, so that thereafter the proposer and the Foundation may refer to this proposal number in correspondence. If receipt is not acknowledged within 3 weeks of submission, the Division of Science Information should be contacted promptly (202/632-5824).

EVALUATION OF PROPOSALS

Proposals are reviewed and evaluated by external reviewers, selected for their knowledge and expertise in topics addressed by the proposal, program staff, and other Foundation professionals.

Criteria for selection of proposals are:

- The professional competence of the principle investigator and other project staff.
- The adequcy of the institutional capabilities and responses.
- The adequacy of the research methods and the potential of the research to lead to important discoveries or valid, significant generalizations.

In addition:

- Fundamental information science proposals will be selected on the basis of their potential contribution to the foundations of information science.
- Applied information science proposals will be selected on the basis of their potential contribution to understanding of information production, transfer, and use; and to improvements in the cost/effectiveness of information systems.
- Descriptive and analytical studies will be selected in terms of their potential contribution to understanding the structure and functioning of the S&T communication system.

Proposals recommended for support by reviewers are also considered by NSF staff in regard to factors such as balance among areas of research, response to new research opportunities, and availability of funds. Final decisions are the sole responsibility of the National Science Foundation.

In the course of a review, the submitting organization may be given an opportunity to supplement or revise its original submission. The time required for final action by the Foundation varies greatly; favorable action will usually take at least 6 months, exclusive of delays occasioned by modifications or supplementary submissions.

NOTIFICATION OF FINAL ACTION

Notification of awards is made by the Foundation's Grants Officer or Contracting Officer. Organizations whose proposals are unsuccessful are so advised as promptly as possible by the Director of the Foundation's Division of Science Information.

AWARD INFORMATION

Projects selected for support may be funded through grants, contracts, or other agreements. Selection of the appropriate award instrument is made by the Foundation. Most awards will be in the form of grants.

Grants usually are on a cost-reimbursable basis, and each grant will contain appropriate general and special provisions according to standard Foundation and Government practice. NSF grants normally cite general grant provisions and special provisions. Grants may also contain other special provisions developed specifically for DSI projects, concerning schedules or other technical or administrative matters and which may replace or modify certain general provisions.

Government financed work should not begin before the effective date of the award document signed by the Grants Officer or Contract Officer.

ACCESS TO PEER REVIEW INFORMATION

After final decisions have been announced, the Foundation will, upon request, inform the principal investigator of the reasons for its decision on a proposal. Verbatim copies of reviews, not including the identity of the reviewer, will be made available to respective principal investigators upon specific request.

REPORTING REQUIREMENTS

INTERIM REPORTING

The National Science Foundation wishes to limit reporting requirements to an absolute minimum, realizing that this is often a serious burden on awardees. At the same time, NSF staff members need to stay abreast of current research results. These results are often useful in making program decisions. Also, staff are responsible for monitoring research in progress. Proposers are asked to suggest procedures for keeping Foundation staff members informed which will not place unnecessary burdens on the proposer.

FINAL REPORTS

Prior to the expiration date of the award or upon completion of the project, whichever occurs first, the awardee will submit 20 copies of the Final Technical Report to the DSI program manager. In addition, within 90 days after the expiration of an award, three copies of the Financial Status Report and two copies of the Summary of Completed Project (NSF Form 98A—Appendix C) must be submitted as a single package to:

Division of Grants and Contracts
National Science Foundation
Washington, DC 20550

In addition, two copies of the Final Technical Report must be submitted to the Division of Grants and Contracts within the above time period, but need not be submitted with the above package.

The Final Technical Report is, in most cases, a comprehensive recounting of the results, findings,and conclusions of the research and other activities conducted under the grant. For certain projects, special arrangements may be made to provide the research product in the form of manuals, handbooks, or guidelines for potential users of the research output rather than in a technical report. These arrangements will be described in the grant instrument or an amendment thereto.

Copies of final reports are made available through the National Technical Information Service, Department of Commerce. In addition, principal investigators are encouraged to seek other forms of dissemination.

APPENDIX A

Proposal Submitted to the National Science Foundation
Information Science Research
Division of Science Information

1. Submitting Organization _____
(including branch, if any)

_____
City State Zip Code

_____
Organizational Classification* Employer Identification (IRS) Number

2. Title of Project _____
(descriptive, but not in excess of 180 characters or spaces)

_____

3. Principal Investigator _____
Name ** Social Security No.

_____
Address (if different from above)

4. Amount requested $_____ $_____
for entire project for the first 12 months

5. Proposed effective date _____ Proposed duration (months) ____

6. New Project ( ) Supplement ( ) Renewal ( ) _____
current award number

ENDORSEMENTS

	Proposed Project Director	Approving Administrative Official
Signature:	_____	_____
Name:	_____	_____
Title:	_____	_____
Telephone Number:	_____	_____
Date:	_____	_____

---

* One of the following should be entered:
ACADEMIC (Local, State, Federal, or Private Control): GOVERNMENT AGENCY (Local, State, or Federal); NON-ACADEMIC, NONPROFIT (Private ownership, Local Government funded, or State Government funded); NON-ACADEMIC, PROFIT (indicate whether your organization is a small business as defined by Small Business Adminstration criteria).

PRIVACY ACT NOTICE

** Submission of social security account numbers is voluntary and refusal to disclose a social security number will not affect an institution's eligibility for award. Social security numbers are used by the Foundation to monitor and facilitate the receipt and processing of numerous proposals, as well as to maintain data on actions taken.

APPENDIX B

SUMMARY
PROPOSAL BUDGET

ORGANIZATION AND ADDRESS	FOR NSF USE ONLY
	PROPOSAL NO.
PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR	DURATION (MONTHS) PROPOSED / REVISED

NSF USE	A. SENIOR PERSONNEL (LIST BY NAME; SHOW NUMBERS OF PEOPLE IN BRACKETS; SALARY AMOUNTS MAY BE LISTED ON SEPARATE SCHEDULE) GPM 205.1b	NSF FUNDED MAN MONTHS CAL.	ACAD.	SUMR.	FUNDS REQUESTED BY PROPOSER	FUNDS GRANTED BY NSF (IF DIFFERENT)
	1. P.I./P.D.				$	$
	2. CO P.I./P.D.				$	$
	3. CO P.I./P.D.				$	$
	4. CO P.I./P.D.				$	$
	5. CO P.I./P.D.				$	$
11115	6. ( ) ← SUBTOTALS A1 - A5 →				$	$
	FACULTY AND OTHER SENIOR ASSOCIATES (ATTACH EXTRA SHEET IF NECESSARY)					
	7.				$	$
	8.				$	$
	9.				$	$
	10.				$	$
	11.				$	$
11117	12. ( ) ← SUBTOTALS A7 - A11 →				$	$
	B. OTHER PERSONNEL (LIST NUMBERS IN BRACKETS)					
11141	1. ( ) POSTDOCTORAL ASSOCIATES				$	$
11149	2. ( ) OTHER PROFESSIONALS				$	$
11150	3. ( ) GRADUATE STUDENTS				$	$
11152	4. ( ) UNDERGRADUATE STUDENTS				$	$
11182	5. ( ) SECRETARIAL - CLERICAL				$	$
11183	6. ( ) TECHNICAL, SHOP, OTHER				$	$
	TOTAL SALARIES AND WAGES (A+B)				$	$
11200	C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				$	$
	TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A+B+C)				$	$
	D. EQUIPMENT (LIST ITEMS AND DOLLAR AMOUNTS FOR EACH ITEM)					
23181	TOTAL EQUIPMENT				$	$
32630	E. MATERIALS AND SUPPLIES					
42111	F. DOMESTIC TRAVEL				$	$
42112	G. FOREIGN TRAVEL (LIST DESTINATION AND AMOUNT FOR EACH TRIP; GPM 731)				$	$

PAGE 1 of 2 PAGES

CANCELS NSF FORMS 98, 135, 569 AND 633 EFFECTIVE 10-1-77

SUMMARY PROPOSAL BUDGET

PROPOSAL NO.

52500	H. PUBLICATION COSTS/PAGE CHARGES	$	$
62315	I. COMPUTER (ADPE) SERVICES	$	$
	J. CONSULTANT SERVICES (IDENTIFY CONSULTANTS BY NAME AND AMOUNT; GPM 516)		
		$	$
	K. PARTICIPANT SUPPORT COSTS, IF ALLOWED BY PROGRAM GUIDE (ITEMIZE) GPM 518		
	1. STIPENDS $		
	2. TRAVEL $		
	3. SUBSISTENCE $		
	4. OTHER - SPECIFY $		
	5. TOTAL PARTICIPANT COSTS (K1 + K2 + K3 + K4)	$	$
	L. ALL OTHER DIRECT COSTS (List items and dollar amounts. Details of subcontracts, including work statements and budget, should be explained in full in proposal.)		
	$		
	$		
	$		
65001	TOTAL OTHER DIRECT COSTS $		
	M. TOTAL DIRECT COSTS (A THROUGH L)	$	$
	N. INDIRECT COSTS (Specify rate(s) and base(s) for on/off campus activity. Where both are involved, identify itemized costs included in on/off campus bases in remarks.)	$	$
74100	TOTAL INDIRECT COSTS		
	O. TOTAL DIRECT AND INDIRECT COSTS (M + N)	$	$
74500	P. LESS RESIDUAL FUNDS (If for further support of current project; GPM 252 and 253)	$	$
75000	Q. AMOUNT OF THIS REQUEST (O MINUS P)	$	$

REMARKS

NOTE: SIGNATURES REQUIRED ONLY FOR REVISED BUDGET (GPM 233). THIS IS REVISION NO.

SIGNATURE OF PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR	DATE OF SIGNATURE	TYPED OR PRINTED NAME AND TITLE
SIGNATURE OF AUTHORIZED ORGANIZATIONAL REPRESENTATIVE	DATE OF SIGNATURE	TYPED OR PRINTED NAME AND TITLE

FOR NSF USE ONLY

INDIRECT COST RATE VERIFICATION			PROGRAM OFFICER APPROVAL
Date Checked	Date of Rate Sheet	Signature	

Grant Number	Amend No.	Institution	Organization	Fund Acct.	Program	Object	

	Proposal Number	Dur.	Chg.	Award Date	Proposed Amount	Prpsd. Dur.	

APPENDIX C

NATIONAL SCIENCE FOUNDATION Washington, D.C 20550	SUMMARY OF COMPLETED PROJECT	Form Approved OMB No. 99R0013

Please read instructions on reverse carefully before completing this form.

1. INSTITUTION AND ADDRESS		2. NSF PROGRAM	3. GRANT PERIOD *from* *to*
4. GRANT NUMBER	5. BUDGET DUR. (MOS)	6. PRINCIPAL INVESTIGATOR(S)	7. GRANTEE ACCOUNT NUMBER

8. SUMMARY (Attach list of publications to form)

9. SIGNATURE OF PRINCIPAL INVESTIGATOR/ PROJECT DIRECTOR	TYPED OR PRINTED NAME	DATE

NSF Form 98A (10-76)

INSTRUCTIONS FOR SUMMARY OF COMPLETED PROJECT
(NSF Form 98A)

GENERAL

Grantees are reminded that the requirement for the submission of this Summary to the National Science Foundation does not change the present requirement for reprints of publications to be forwarded to the Foundation program unit having cognizance over the grant. If the Technical Report is to be deposited in the National Technical Information Service (NTIS), the Bibliographic Data Sheet (NTIS Form 35) may be substituted for this form.

SUMMARY

The summary (approximately 300 words) must be self-contained so as to be intelligible to a knowledgeable reader. Without restating the project title, it should begin with a topic sentence stating the project's major thesis. In preparing the summary the author should include, if pertinent to the project being described, the following items:

—The primary objectives and scope of the project.

—The techniques or approaches used only to the degree necessary for comprehension.

—The findings and implications stated as concisely and informatively as possible.

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The requirements outlined in the American National Standard for Writing Abstracts (ANSI Z39.14-1971) may be useful in preparing the summary.

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